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ABSTRACT

Literature reviews dealing with psychotherapy and counseling too often conclude that no conclusions can be drawn. However, a critique of the literature on covert sensitization (CS) may offer clarifications of these apparently contradictory remarks. Research studies (N=84) were categorized by problem types, method used in the investigation, method of participant recruitment, and treatment efficacy. Results revealed that different methods were used to investigate the effects of CS on different problem behaviors. In general, studies which focused on the individual found CS to be an effective technique. Studies which tested average change between groups found mixed or negative evidence. The findings suggest that a conscious systematic program of research is needed to account for interactions of these variables. (JAC)

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Confounding Methodology and Problem-Type in Psychotherapy Research:

An Example

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Paper presented at the 89th Annual Convention of the American Psychological Association, Los Angeles, August, 1981.

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It sometimes seems a bit eerie, if not simply disturbing, how often a literature review in the domains of psychotherapy and counseling conclude with a statement similar to: "The research in this area seems promising, but further research needs to be done before any firm conclusions may be drawn." In the course of performing a literature review on covert sensitization (CS; Biskin, Note 1), I read several previous reviews that essentially ended with the same conclusion (Agras, 1972; Little & Curran, 1978; Mahoney, 1974; Wisocki, 1972). As I began reviewing the pool of about 85 reports on CS published through March, 1980, I began to feel somewhat like I had imagined my predecessors to feel--frustrated by the promise of an apparently useful behavior modification technique which never seemed to be fully realized. However, as I reviewed my notes, some form began to take shape from the apparent chaos. This paper addresses that part of my critique of the literature on CS (Biskin, Note 1) which may clarify the source of some of the apparently contradictory results in the CS literature. To the extent that the state of affairs in CS research is representative of investigations in other areas of counseling and psychotherapy, reanalysis of the literature in those areas may prove useful for explaining apparently inconsistent findings.

Briefly, CS is a technique formalized by Cautela (1966) which can be described as imaginal aversion therapy. It is similar to systematic desensitization in that scenes are developed jointly by a client and therapist. Scenes included an aversive segment (most often involving nausea and vomiting) which is paired with scenes of the client engaging in the target behavior. Unlike

desensitization, CS attempts to decrease approach behaviors (such as alcohol abuse, maladaptive eating, cigarette smoking, deviant sexual behaviors, etc.), rather than to decrease avoidance behaviors (e.g., phobias). Because CS involves no physically painful external stimuli, such as electric shock or drugs, it may be viewed as a treatment of choice in cases where aversive therapy is indicated. However, the literature, upon first glance, would seem to indicate that CS is not equally efficacious with different problem behaviors. Most notably, CS seems to be most effective when used to modify deviant sexual behaviors, less successful in the reduction of alcohol consumption, and relatively ineffective in eliminating maladaptive smoking and eating behaviors. The present study categorized CS studies by problem-type, as did many of the previous reviews. In addition, however, studies were organized and crosstabulated over several other dimensions.

Method

Procedure

Eighty four (84) studies were found in the published literature on CS. No unpublished studies or dissertations not revised for publication were included in the review. Approximately half of these studies had been reviewed by Mahoney (1974) and/or Little & Curran (1978). The studies were first categorized by problem-types that had been investigated using CS: alcohol abuse, maladaptive eating, cigarette smoking, deviant sexual behaviors, and miscellaneous behaviors. Within each category of problem-type, each case was further classified by the method used to investigate the efficacy of CS: between-group design, within-participant design, or case report. Studies were also classified according to

method of participant recruitment: active recruitment (advertisements, as part of a course, inducements for extra course credit) or non-recruitment (self-referral). Finally, studies were classified in terms of treatment efficacy: positive, mixed, or negative¹.

Results

Because of the heterogenous nature of the problem-types in the miscellaneous grouping, studies in that category were not included in any analyses using problem-type as a factor. Table 1 shows that different methods of investigation tended to be used to investigate the effects of CS on different problem behaviors. The effectiveness of CS in modifying maladaptive alcohol consumption was investigated primarily through the use of case reports, while

Insert Table 1 about here.

between-group studies predominated in the areas of eating and smoking behaviors. Deviant sexual behavior modification with CS was investigated with both case reports and within-participant designs (c.f., Hersen & Barlow, 1976). This differential procedural set was statistically significant ($\chi^2 = 31.474$, $p < .001$, 6 d.f.), and indicated that the differential effectiveness with different problem-types might have been a function of the different methodologies employed, rather than a result of differential effectiveness of CS with the different problem-types.

In order to test that hypothesis, problem types were crosstabulated with level of effectiveness. Because virtually all of the case reports showed positive results (not surprising, since few negative effects in case reports are ever submitted for publication, and even fewer are accepted), and all of the within-

participant studies also showed positive results (and 82% of these were with participants displaying sexually deviant behaviors), it is fruitful only to look at the studies using between-group designs. Table 2 shows that within

Insert Table 2 about here.

the method of between-group designs, there was no significant difference in effectiveness of CS (Chi-square = 3.7206, $p > .50$, 6 d.f.). This suggests a hypothesis that if between-group designs had predominated in all problem areas, CS might have been concluded to be ineffective for all problem-types. Conversely, if more more within-participant studies had been done in the areas of alcohol abuse, smoking, and eating, it is possible that more evidence supporting the efficacy of CS might have been found. These hypotheses currently go untested since methodology and problem-type have been hopelessly confounded to date.

Studies were then classified by effectiveness and method of recruitment of participants, since those who are motivated to seek help for a problem behavior may respond more favorably to CS (or any other treatment, for that matter) than those who are solicited to participate in a study before they were ready to seek help on their own. Because of the heterogenous nature of the "mixed results" groups, only those between-group studies where results could be classified as either positive or negative were included. Table 3

Insert Table 3 about here.

suggests that a relationship between effectiveness of CS and nature of the recruitment of participants may exist (Fisher's Exact Probability Test, $p = .0455$, one-tailed), although the size of the sample ($n = 11$) indicates that

this result ought to be interpreted with caution. Yet the result is consistent with the hypothesis that motivation for change is an important component for behavior change.

Discussion

The results of this study have several implications for literature reviews in psychotherapy research and for conducting programs of research on psychotherapy. One of these relates to the now familiar caveat about psychotherapy research: the question, "what works?" is irrelevant. The more appropriate questions are, "What works with whom, with which problems, under what conditions, and when administered by whom?" Although no clearcut relationships can confidently be posited from the present study, it is clear that issues of methodology, problem behavior, and participant population have been confounded in the CS literature, and quite likely in other areas as well. Some reports indicate the potential effectiveness of CS, others contraindicate it. In general, in those studies that have focused on the individual, CS has been found to be an effective technique for reducing or eliminating undesirable behaviors, especially when combined in a larger psychotherapeutic program. Conversely, studies which have looked at average change between groups of individuals typically have found mixed or negative evidence for efficacy. However, because the different methodologies have been applied differentially across problem-types, results to date have been hopelessly confounded.

In addition, method of participant solicitation has differed across problem types: those in smoking and eating studies were predominantly recruited as research subjects on university campuses or through ads in local newspapers.

those in the alcohol and sexual deviancy areas would have received treatment even had the studies not taken place for a variety of social, psychological, and/or legal reasons (e.g., impending divorces, judicial referrals, etc.). Only one study involving inappropriate eating behaviors in a between-group paradigm was conducted using self-referred clients who had sought help for their problem, and this was the one between-group study for this problem-type that indicated positive evidence for the efficacy of CS.

Each of the methodologies discussed has advantages and drawbacks. Case reports provide a means of generating hypotheses about the efficacy of a psychotherapeutic technique. Between-group studies can be informative about the relative effectiveness on the average, in addition to providing information about the variability of the effect of a treatment in a population. Within-participant studies provide informations about intraindividual effectiveness and variability; and when replicated over a large number of individuals, can provide information about the pattern of effectiveness of a technique over time within a population. When these methods are used to complement each other in a program of research, or when combined with other innovative methodologies (Hill, Note 2), a more accurate picture of the effectiveness of the behavior change technique being studied can be deduced. The result of not crossing methods, problem-types, participant characteristics, etc., such as described in Kiesler's (1971) grid model of psychotherapy research, is to confound these factors and to make generalizations about the effectiveness of any technique or intervention program suspect. Since it is virtually impossible to cross all these factors in a single study without causing other

uncontrolled problems (as demonstrated in Gelso's [1979] discussion of Mindus' bumper sticker "bubble hypothesis"), it seems critical that a conscious systematic program of research be set up before a therapeutic technique can be effectively evaluated. Each "cell" of the grid needs to be accounted for at some point in time.

Whether such a program is carried out under the auspices of a single "committee" of researchers, or whether a more informal process is worked out by which persons interested in studying a particular question try and fill in gaps in the literature is not critical (although the former process is likely to be more efficient), as long as the relevant dimensions are defined as soon as possible (e.g., population, problem-type, methodology, client characteristics, settings, etc.) so that it is explicit to all what the missing pieces of the efficacy puzzle are at any given point in time.

Until some kind of programmatic crossing of all relevant variables occurs in the study of CS as a psychotherapeutic technique, no conclusion about its efficacy can be drawn. To the extent that a similar state of affairs is found in other areas of psychotherapy research, and I believe that this is quite likely, uncertainties will also abound many other areas of counseling and psychotherapy research.

Footnote

1. A study was classified as positive if CS showed an effect above that in a control group or other treatment group. A study was classified as mixed if the results were: a) ambiguous, b) showed a positive effect for CS, but not above and beyond that of a comparison group, or c) some dependent measures showed positive changes while other did not, above and beyond those of a comparison group. A study was classified as negative if there was no change on the dependent measures, or changes were significantly less than those of a comparison group.

Reference Notes

1. Biskin, B.H. Covert sensitization: A critical review. Unpublished manuscript, Iniversity of Maryland, 1980.
2. Hill, C.E., & Gronsky, B.R. Research: Why & how. Paper presented at symposium entitled, "Counseling Psychology--The Next Decade: Research," 88th Convention of the American Psychological Association, Montreal, 1980.

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Table 1
Covert Sensitization Reports Classified by
Maladaptive Behavior and Methodology

Method ^a	<u>Maladaptive Behavior</u> ^b			
	1	2	3	4
BG	4	8	9	1
WP	1	1	0	9
CR	10	4	2	21
Total	15	13	11	31

Note: N = 70.

^aBG = between-group experiments

WP = within-participant experiments

CR = case reports

^b1 = alcohol abuse

2 = inappropriate eating

3 = cigarette smoking

4 = sexual deviancy

Chi-square = 31.474, $p < .001$.

Table 2
Covert Sensitization Between-Group Experiments Classified
by Maladaptive Behavior and Effectiveness in Study

Effect	<u>Maladaptive Behavior^a</u>			
	1	2	3	4
Positive	1	1	0	0
Mixed	1	4	5	1
Negative	2	3	4	0
Total	4	8	9	1

Note. N = 22.

^a1 = alcohol abuse

2 = inappropriate eating

3 = cigarette smoking

4 = sexual deviancy

Chi-square = 3.7206, $p > .50$

Table 3

Covert Sensitization Between-Group Experiments Classified
by How Participants Were Recruited and Effectiveness of Study^a

Effect	<u>Recruitment Procedure</u>	
	Solicited	Non-Solicited
Positive	0	3
Negative	7	2
Total	7	5

Note. N = 12. Includes the two "positive" and seven "negative" studies reported in Table 2, plus one positive study in the "miscellaneous" problem-type category.

^aStudies which had mixed results are not included.

Fisher's Exact Probability Test: $p = .04545$